

REQUEST FOR RECONSIDERATION

Claims 1, 4, 6 and 8 remain active in this application with claims 1, 4 and 6 being under active consideration.

The claimed invention is directed to a hair shampoo composition.

Hair shampoo detergent compositions containing alkyl ether sulfates have been used based on their pleasant feeling upon cleansing but can suffer from inferior foaming speed relative to alkyl sulfates of which they are an improvement thereof. Shampoo compositions which foam quickly yet have a pleasant feeling as well as have a conditioning effect on hair are sought.

The claimed invention addresses the problem by providing a hair shampoo composition comprising a specific amphipathic amide lipid, an ethylene oxide ether sulfate having a specified distribution of ethylene oxide units, and a cationic polymer, wherein the composition has a diluted pH of 1-5. Applicants have discovered that when the ethylene oxide ether sulfate has at least 70 wt.% or greater of sulfates where $a=0-2$, that the composition provides good shampoo performance in terms of foaming speed. Such a hair shampoo composition is nowhere disclosed or suggested in the cited prior art.

The rejections of claims 1, 4 and 6 under 35 U.S.C. § 103(a) over EP 1,166,766 and WO 97/35548 each in combination with Hoshowski et al. U.S. 5,137,715 are respectfully traversed.

No Disclosure of the Claimed pH

None of the cited references disclose or suggest a shampoo composition having a pH of from 1-5 at 25°C when diluted to 20 times its weight with water.

Neither WO '548 nor EP '766 disclose composition having a pH as claimed.

“ '548 does not teach the use of an amphipathic amide lipid or a composition having **the specific pH** containing an amphipathic amide lipid, a mixture of alkyl ether

sulfate surfactants, and the other requisite components of the composition in the specific amounts as recited by the instant claims.”(page 5 of outstanding official action, emphasis added)

“However ‘**766 does not teach** the use of a mixture of alkyl ether sulfates, a cationic cellulose polymer, or a composition having **the specific pH** containing an amphiphatic amide lipid, a mixture of alkyl ether sulfate surfactants, a cationic polymer, and the other requisite components of the composition in the specific amounts as recited by the instant claims.” (page 7 of outstanding official action, emphasis added)

As such, neither of these cited reference disclose the claim limitation of a pH of from 1-5 at 25° C when diluted to 20 times its weight with water.

The examiner relies upon Hoshowski et al. asserting a pH as claimed for a similar composition.

“Hoshowski et al teach a hair shampoo-conditioner composition including an anionic cleansing surfactant, such as alkyl sulfate or an alkyl ether sulfate, and a polymeric conditioning compound, in a suitable carrier, and having a pH of from about 2.5 to less than 7, to cleans the hair.” (page 6 of outstanding official action)

Applicants respectfully submit that the pH of the composition of Hoshowski et al. fails to provide motivation to formulate all alkyl ether sulfate containing composition at a pH of from 2.5 to 7, as the pH description of the reference is to provide a specific chemical environment for a polymeric cationic conditioning compound.

Hoshowski et al. describes a hair shampoo-conditioner comprising a) an anionic surfactant; b) a polymeric cationic conditioning compound; and c) a suitable carrier at a pH of about 2.5 to 7 (column 1, lines 12-28). The polymeric cationic conditioning compound is **an essential feature** of the composition as it imparts conditioning properties to the hair and does not adversely affect the level of foam generated by the anionic surfactant (column 11, lines 65-68).

However the pH of from 2.5 to 7 is a necessary feature associated with the polymeric cationic conditioning compound (b) to keep it in a cationic form. More specifically, Hoshowski et al. states:

“at a pH of from about 2.5 to less than 7, the compound of general structure formula (I) is **cationic in nature**.” (Column 12, lines 22-23)

“Furthermore, surprisingly and unexpectedly, even when a low amount of anionic cleansing surfactant is included in the composition, the presence of the polymeric conditioning compound, even **in its cationic form at a pH of from about 2.5 to less than 7**, does not adversely affect the generation of an acceptable and stable foam level, thereby ensuring consumer acceptance.” (column 11, lines 55-62)

“In general, a sufficient amount of acid is added to neutralize the polymeric amidoamine compound and to adjust the final pH of the hair-treating composition to with a range of **from about 2.5 to less than 7; preferably in a pH range of from about 2.5 to about 6; and to achieve the full advantage of the present invention in a pH range of from about 2.5 to about 5.5**” (column 13, lines 58-65)

It is clear that in order to get compatibility of the anionic surfactant with the polymeric amidoamine, the amidoamine must be in a cationic form. This is achieved at the disclosed pH of from 2.5 to 7. Thus the only reference relied upon by the examiner for a disclosure of pH, provides an acidic pH in order to keep the amidoamine component in a cationic state. However, this disclosure does not provide motivation to formulate all alkyl ether sulfate surfactant containing compositions to a pH of from 2.5 to 7, but rather only those compositions which contain a polymeric amidoamine with which compatibility with an anionic surfactant is sought. As an amidoamine is not a disclosed component of either WO ‘548 or EP ‘766 there would be no motivation to formulate either composition to a pH of from 2.5 to 7, based on the disclosure of Hoshowski et al.

Since there is no motivation to formulate all alkyl ether sulfate surfactants to a pH of from 2.5 to 7, the claimed invention which recites a combination of amphipathic amide lipid, ethylene oxide sulfate surfactant and cationic polymer, at a pH of from 1-5 when diluted 20 times is clearly not obvious.

There simply is no reference of record to suggest the claim limitation of a pH of 1 to 5 at 25°C when diluted to 20 times its weight with water. Withdrawal of the rejections under 35 U.S.C. §103(a) is respectfully requested.

No Disclosure Of A Composition Containing Ethylene Oxide Ether Sulfates Having Claimed Distribution of $a=0$, $a=1$, $a=2$ and At Least 70 Wt.% Of Sulfates Where $a=0-2$

Notwithstanding the failure of the cited references to disclose or suggest the claimed pH, none of the cited references disclose or suggest a composition containing ethylene oxide ether sulfates having at least 70 wt.% of sulfates where $a=0-2$.

None of the references suggests a sulfate composition having at least 70 wt.% of the sulfates where $a=0-2$ nor 30-45 wt.% of sulfate where $a=0$, 17-27 wt.% of sulfate where $a=1$ and 10-20 wt.% of sulfate where $a=2$.

WO '548 at page 6, lines 4-5 merely describes an alkyl ether sulfate where the number of ethylene oxide units range from 1-8 wherein the composition comprises less than about 5%, preferably less than about 3% and most preferably less than about 2% of alkyl sulfate ethoxylated surfactant having less than 1 mole of ethoxylation." (page 5, lines 26-31). This reference fails to suggest an amount of at least 70 wt.% of sulfate where $a=0-2$ nor quantify the amounts as claimed of sulfate where $a=0$, $a=1$ and $a=2$.

EP '766 generically describes a dermatologic composition which generically contains surfactants such as anionic, cationic, nonionic or amphoteric surfactants such as alkyl ether sulfate, alkyl sulfate or olefin sulfonate (paragraph [0022]). This reference fails to suggest an amount of at least 70 wt.% of sulfate where $a=0-2$ nor quantify the amounts as claimed of sulfate where $a=0$, $a=1$ and $a=2$.

In contrast, the claimed invention is directed to a hair shampoo composition in which a sulfate surfactant comprises 30-45 wt.% of sulfate where $a=0$, 17-27 wt.% of sulfate where $a=1$ and 10-20 wt.% of sulfate where $a=2$, the balance of sulfates are where $a=3$ or greater, and an amount of at least 70 wt.% of alkyl sulfates exhibiting $a=0-2$.

The Broad Genus does Not render Obvious Specific Species

The disclosure of WO '548 of ethylene oxide units range from 1-8 is simply too broad to suggest the narrow claim limitation of 30 to 45 wt. % of the sulfate exhibiting $a=0$, from 17 to 27 wt. % of the sulfate exhibiting $a=1$, from 10 to 20 wt. % of the sulfate exhibiting $a=2$, and the balance of the sulfates exhibiting $a=3$ or greater; and contain the sulfates exhibiting $a=0$ to 2 in an amount of 70 wt. % or greater based on the total sulfates. There is nothing in the reference to suggest such a distribution of ethylene oxide unit substitution. There is no motivation or suggestion to adjust the ethylene oxide unit distribution to that claimed. The claimed distribution is neither inherent nor suggested.

Consider the size of the prior art genus, bearing in mind that size alone cannot support an obviousness rejection. See, e.g., *Baird*, 16 F.3d at 383, 29 USPQ2d at 1552 (observing that "it is not the mere number of compounds in this limited class which is significant here but, rather, the total circumstances involved"). There is no absolute correlation between the size of the prior art genus and a conclusion of obviousness. *Id.* Thus, the mere fact that a prior art genus contains a small number of members does not create a *per se* rule of obviousness. **Some motivation to select the claimed species or subgenus must be taught by the prior art.** See, e.g., *Deuel*, 51 F.3d at 1558-59, 34 USPQ2d at 1215 ("No particular one of these DNAs can be obvious unless there is something in the prior art to lead to the particular DNA and indicate that it should be prepared."); *Baird*, 16 F.3d at 382-83, 29 USPQ2d at 1552; *Bell*, 991 F.2d at 784, 26 USPQ2d at 1531 ("Absent anything in the cited prior art suggesting which of the 10^{36} possible sequences suggested by Rinderknecht corresponds to the IGF gene, the PTO has not met its burden of establishing that the prior art would have suggested the claimed sequences."). (M.P.E.P. 2144.08 II A(4)(a) emphasis added)

The specificity of the claim limitations of 30 to 45 wt. % of the sulfate exhibiting $a=0$, from 17 to 27 wt. % of the sulfate exhibiting $a=1$, from 10 to 20 wt. % of the sulfate exhibiting $a=2$, and the balance of the sulfates exhibiting $a=3$ or greater; and contain the sulfates exhibiting $a=0$ to 2 in an amount of 70 wt. % or greater based on the total sulfates, in view of vast generic disclosure of "ethoxylated alkyl sulfate surfactant having from about 1 to about 8 moles of ethoxylation" precludes a conclusion of obviousness. There is nothing in the cited references to point one in the direction of an alkyl ether sulfate having 30-45 wt. %

a=0, 17-27 wt. % a=1, 10-20 wt. % a=2 the balance being 3 or greater and the amount of a=0-2 being 70 wt. % or greater. To the contrary the reference describes that the composition comprises "less than about 5%, preferably less than about 3% and most preferably less than about 2% of alkyl sulfate ethoxylated surfactant having less than 1 mole of ethoxylation." (page 5, lines 29-31). This would suggest limiting the amount of ethoxylated surfactant where a=0, rather than to ensure a sulfate surfactant having an amount of a=0 of 30-45 wt. %.

There is No Motivation Or Suggestion To Adjust the Distribution of Ethylene Oxide Units

There is nothing in the cited reference to suggest modification of the distribution of ethylene oxide units to be as claimed. Again, the disclosure of the reference is generic to have ethylene oxide units ranging from 1 to 8, without any suggestion of specific percentages of any single member of the genus.

To establish a *prima facie* case of obviousness in a genus-species chemical composition situation, as in any other 35 U.S.C. 103 case, **it is essential** that Office personnel find **some motivation or suggestion** to make the claimed invention in light of the prior art teachings. See, e.g., *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1996) ("[T]he mere possibility that one of the esters or the active methylene group-containing compounds... could be modified or replaced such that its use would lead to the specific sulfoalkylated resin recited in claim 8 **does not make the process** recited in claim 8 **obvious** 'unless the prior art suggested the desirability of [such a] modification' or replacement.") (quoting *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)) (M.P.E.P. 2144.08 II A emphasis added)

As there is no suggestion in the reference to suggest the specifically quantified amounts of sulfates where a=0, a=1 and a=2, the claimed invention is clearly not rendered obvious from the disclosures of these references.

As there is no suggestion in the reference to suggest an amount of at least 70 wt.% of sulfates where a=0-2 nor the specifically quantified amounts of sulfates where a=0, a=1 and

a=2, the claimed invention is clearly not rendered obvious from the disclosures of these references. It clearly would not have been obvious to have selected such a distribution and degree of ethoxylation and accordingly withdrawal of the rejections under 35 U.S.C. §103(a) is respectfully requested.

No Suggestion of Improved Foaming Speed

Moreover, applicants observe an unexpected improvement in foaming speed when the composition of the sulfate surfactant is as claimed. The examiner's attention is directed to the data appearing in Table 2 on page 29 of the specification. The data compares the foaming speed of compositions containing both the amphipathic amide lipid and a sulfate as claimed as compared with a sulfate which has less than 70 wt.% of alkyl sulfate as claimed nor the claimed distribution of sulfate where a=0, a=1 and a=2. For the examiner's convenience, Table 2 in the specification is reproduced below.

Table 2

(wt.%)

| | | Examples | | | Comparative Examples | | |
|---|---|--------------|--------------|--------------|----------------------|--------------|--------------|
| | | 1 | 2 | 3 | 1 | 2 | 3 |
| (A) | Amphipathic amide lipid A | 2 | 2 | - | - | 2 | 2 |
| | Amphipathic amide lipid B | - | - | 2 | - | - | - |
| (B) | Sulfate 1 | 10 | - | 10 | 10 | - | - |
| | Sulfate 2 | - | 10 | - | - | - | - |
| | Comparative sulfate 1 | - | - | - | - | 10 | - |
| | Comparative sulfate 2 | - | - | - | - | - | 10 |
| Others | Dimethylpolysiloxane emulsion *1 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Myristyl alcohol | 1 | 1 | 1 | 1 | 1 | 1 |
| | Cocoylmonoethanolamide | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| | Ethylene glycol distearyl ester | 1 | 1 | 1 | 1 | 1 | 1 |
| | Cationic hydroxyethylcellulose | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| | Cationic guar gum | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| | Malic acid | 1 | 1 | 1 | 1 | 1 | 1 |
| | 50 wt.% NaOH aq. soln/50 wt.% citric acid | q.s.*2 | q.s.*2 | q.s.*2 | q.s.*2 | q.s.*2 | q.s.*2 |
| | Purified water | Bal- ance | Bal- ance | Bal- ance | Bal- ance | Bal- ance | Bal- ance |
| pH | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| Buffering capacity (NgOH-gram equivalent/L) | | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |

| | | | | | | | |
|------------|---------------------------------|----|----|----|---|----|----|
| Evaluation | Foaming speed | A | A | A | C | C | C |
| | Lubricated feeling of foam | 18 | 20 | 20 | 9 | 15 | 7 |
| | Gloss and manageability | 19 | 20 | 15 | 6 | 18 | 18 |
| | Resilience and strength of hair | 20 | 19 | 17 | 9 | 11 | 12 |

*1: "CF-2460" (trade name; product of Dow Corning Toray Silicone, a 75 wt.% emulsion, average particle size: about 100 μ m)

*2: Amount enough for pH adjustment

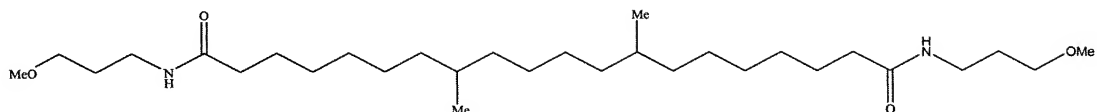
Comparative sulfate 1 and comparative sulfate 2 have a total amount of sulfate surfactant where a=0-2 of 67.86 and 51.99, far below the claimed amount of at least 70 wt.%. The foaming speeds of these compositions were evaluated to occur from 200 to less than 300 seconds.

In contrast, Examples 1 and 2 containing the same amphipathic amide lipid but sulfates 1 and 2, sulfates having 77.73 and 72.29 wt.% of sulfate surfactant where a=0-2, exhibited foaming speeds **less than 100 seconds**. Thus, applicants have demonstrated an improved rate of foaming by selection of an alkyl sulfate distribution as claimed. While the examiner has criticized applicants' data for only demonstrating a single amphipathic amide lipid, applicants note that **the claims recite the structure of the single amphipathic amide lipid A**. Thus applicants' data is commensurate in scope for the claimed amphipathic amide lipid. As there is no suggestion of such an improvement in foaming speed by selection of the alkyl sulfate composition, the claimed invention is clearly not obvious from these references and accordingly withdrawal of the rejections under 35 U.S.C. § 103(a) is respectfully requested.

The provisional rejections of claims 1, 4, 6 and 7 under the judicially created doctrine of obvious-type double patenting over claims 1-9 of U.S. 10/743,836 and 11/245,071 is respectfully traversed.

Neither Application Claims an Amphipathic Amide Lipid as Claimed

The current claims recite a specific structure of amphipathic amide lipid as follows:



Such an amphipathic amide lipid is nowhere claimed in either application cited by the examiner. As the specific amphipathic amide lipid is not claimed in the cited applications, the provisional rejection for obviousness-type double patenting is improper and must be withdrawn.

Neither Application Claims A Composition Containing Ethylene Oxide Ether Sulfates Having The Claimed Distribution of $a=0$, $a=1$, $a=2$ and At Least 70 Wt.% Of Sulfates Where $a=0-2$

The current claims recite an alkyl ether sulfate having 30-45 wt.% $a=0$, 17-27 wt. % $a=1$, 10-20 wt. % $a=2$ the balance being 3 or greater and the amount of $a=0-2$ being 70 wt. % or greater. Such a sulfate surfactant is nowhere claimed in either application cited by the examiner. As the as the sulfate surfactant is not claimed in the cited applications, the provisional rejection for obviousness-type double patenting is improper and must be withdrawn.

Applicants have addressed the objection to claim 1 by deleting the parentheses as suggested by the examiner. Withdrawal of this objection is respectfully requested.

Applicants submit that this application is now in condition for allowance and early notification of such action is earnestly solicited.

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